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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,913	05/10/2002	Hiroshi Yamakawa	208524US3PCT	1931

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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LOPEZ, CARLOS N

ART UNIT	PAPER NUMBER
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1731

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/28/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/28/2007.

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## Office Action Summary

Application No.

09/831,913

Applicant(s)

YAMAKAWA ET AL.

Examiner

Carlos Lopez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/6/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 6-10, 14-16, 19, 20, 22, 25 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 11-13, 17-18, 21, 23-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

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***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 11-12, 17 and 24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over GB 836,560 ('560).

The '560 patent discloses an apparatus for bending a glass sheet. As shown in figure 4, a tunnel like heating furnace comprises a bending mold "M", integral roof heaters 54 deemed as the claimed first group of plurality of heating elements, and heaters 88 which are deemed as the claimed second group of plurality of heating elements attached separably to the inner wall surface of the heating furnace. As further noted in page 3 lines 62-78 of '560, heaters 88 are raised and lowered by a support housing, thus reading on applicant's claimed structure on which the second of plurality of heaters are mounted. As noted in page 3 lines 22-78 the support housing assembly comprised of bracket 98 mounted with axle rods 96, pulley element 92 and cable element 91 for

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mounting a pair of heaters 88 is deemed as the claimed heater rack. It is further noted that the heater racket is an assembly of axle rods 96 each connected to bracket 98 wherein each rod having a pair of heaters 88. GB '560 in page 3 lines 79-85 also discloses that the heaters are not only adjusted by the pulleys by also adjusted by axle rod 96 which is part of the noted assembly deemed as the claimed heater rack. Hence at the very least the assembly, is deemed as the claimed "heater rack" since it meets the claimed function of having a plurality of heaters mounted thereon. The claimed intended use of having the "heater rack" be moved to increase or decrease the distance between the second group of heaters 88 and the glass sheet is disclosed in page 3 lines 80-85 disclosing that the axle rod is moved in a direction perpendicular to the movement of the glass sheet. In regards to the claimed limitation of having five or more heating elements, figure 10 shows multiple pairs of heating elements 88 meeting the claimed five or more heating elements. Hence, anticipating the claimed invention.

Alternatively, the reason for raising and lowering the heaters 88 is to provide intense radiation to areas of the glass sheet that requires a severe bend (Page 1, Lines 79-87). Since heaters 88 are electrical heaters (See Page 3, lines 58-59 and lines 65-73), it would be expected that the temperature of each heater may be individually controlled as claimed by applicant by regulating the supplied voltage as similarly done to the first group of heaters (See Page 2, lines 80-89).

In view that the heaters 88 are provided in areas where a severe bend of the glass sheet is needed, see page 1 lines 79-90, it is readily envisaged that additional crease heaters, such as 1,2,3, or 4, to provide further bend to the glass sheet is readily

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derived from the teachings of '560. Page 1 lines 79-90 '560 suggest that the number of crease heaters would be dictated by the number of severe bends the glass sheet sought. At the invention was made, it would have been obvious to a person of ordinary skill in the art to have provided at least 3 additional crease heaters on the heater rack of '560 in order to provide glass sheets with different number of severe bends. Thus, the claimed number of at least 5 crease heaters, is merely following the teaching of '560, which notes that the crease heaters are placed in areas of the glass sheet where a severe bend is desired, in the instant case 5 severe bends.

As for claim 2, the heaters 88, deemed as the second group heaters, may be used to heat one portion of the glass sheet to a greater temperature than another portion and the position relative to the glass may be adjusted (Page 1, lines 54-61 and lines 70-78).

As for claims 3-4, 11-12 and 17, as noted above the crease heaters are suspended by cables 90 and 91 as shown in figure 3 and, as noted above, its distance relative to the inner ceiling wall may be adjusted in order to control the intensity of radiation being applied to the glass (see Page 1, lines 54-61 and lines 70-78).

As for claim 24, the second group of heaters, deemed as heaters 88 of '560, are disposed two-dimensionally, is deemed to be met by '560 since the heaters 88 are at least a 2-dimensional object having a length and width, for which the heaters are thus disposed two-dimensionally in the heating furnace.

Claims 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB 836,560 ('560).

The '560 patent discloses an apparatus for bending a glass sheet. As shown in figure 4, a tunnel like heating furnace comprises a bending mold "M", integral roof heaters 54 deemed as the claimed first group of plurality of heating elements, and heaters 88 which are deemed as the claimed second group of plurality of heating elements attached separably to the inner wall surface of the heating furnace. As further noted in page lines 62-78 of '560, heaters 88 are raised and lowered by a support housing, thus reading on applicant's claimed structure on which the second of plurality of heaters are mounted.

The reason for raising and lowering the heaters 88 is to provide intense radiation to areas of the glass sheet that requires a severe bend (Page 1, Lines 79-87). Since heaters 88 are electrical heaters (See Page 3, lines 58-59 and lines 65-73), it is inherent that the temperature of each heater may be individually controlled as claimed by applicant by regulating the supplied voltage as similarly done to the first group of heaters (See Page 2, lines 80-89).

Claim 23 requires that the second group of heating elements be disposed along the center-line of the glass sheet. While '560 does not explicitly disclose the claimed limitation, it does note that the secondary heaters 88 provide intense radiation to areas of the glass sheet that requires a severe bend.

Hence, it is clearly taught by '560 that the location of the heater will be determined where areas of the glass sheet is desired to have a bend. Thus, the claimed limitation

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of having the heating elements along the center line of the glass sheet is clearly envisaged by '560 which teaches that the location of the heaters would depend on the where the bend of the glass will be made. In the instant case the location of the heaters at the center-line of the glass, is merely following the teachings envisaged by '560, which is to have placed the heaters where a bend is desired. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have placed the heaters of '560 along the center line of the glass sheet being heated by '560 in order to obtain the desired bend of the glass sheet at the center line.

Claims 5, 13, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 836,560 ('560) in view of Kamata (US 6,347,535). As shown in figure 9 of '560 the second group of heaters are heating plates 54. '560 is silent disclosing the heating plate is at the face side of a heater wire. However, as shown by Kamata, heating elements having a heating plate have heater wires col. 18, lines 35-42. Thus at the time the invention was made it would have been obvious to a person of ordinary skill in the art to have provided a heater wire to a heating plate of a heating element of '560 as taught by Kamata in order to provide a heat source to the heating plate. Additionally while Kamata is silent disclosing how the heating plate is arranged with the heater wire, it would be obvious to a person of ordinary skill in the art that the heating plate would be on the heating face side of the heater wire to thus be able to heat the heating plate. Hence, in view of the teachings of Kamata, conventional heating elements of a heating plate type have heater wires at its heating face side in order to provide a heat source to the heating plate.

***Response to Arguments***

Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection. In particular the previous rejection has been modified to read that the heater rack is a support housing assembly comprised of bracket 98 mounted with axle rods 96, pulley element 92 and cable element 91 for mounting a pair of heaters 88 is deemed as the claimed heater rack.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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